

WHAT IS CLAIMED IS:

1. A method of generating an image signal for an image reproduction comprising:
 - a) identifying page elements associated with the image reproduction, the page elements comprising autonomic segments;
 - b) converting a first layout signal associated with the page elements into a second layout signal associated with the autonomic segments;
 - c) retrieving from memory, according to the second layout signal, the autonomic segments required to generate a fraction of the image reproduction;
 - d) decompressing the autonomic segments;
 - e) generating, according to the second layout signal, a first portion of the image signal for the image reproduction, while buffering the image data associated with a second portion of the image signal; and
 - f) repeating the sequence of c), d), and e) until the composition of the image signal is complete using a consecutive fraction of the image reproduction as the fraction, wherein the consecutive fraction at least partially overlaps with the second portion.
2. The method according to Claim 1, wherein the linear size of the portion of the image reproduction associated with an autonomic segment is smaller than or equal to half the linear size of the portion of the image reproduction associated with the corresponding page element.
3. The method according to Claim 1, wherein the autonomic segments are one of the following: area tiles, image tiles or image blocks.
4. The method according to Claim 3, wherein line-work image data associated with the autonomic segments are compressed using a lossless compression format, in which two-dimensional blocks of the line-work image data are subjected to the following lossless steps:
 - (i) fractal reordering;
 - (ii) run length encoding of the fractal re-ordered data;
 - (iii) index encoding of the pixel value of the run length encoded data; and
 - (iv) entropy encoding of the index encoded pixel values.
5. The method according to Claim 3, wherein during the generation of the image signal an autonomic segment of a first page element which was compressed according to at least

a first compression format and is merged after decompression with an autonomic segment of a second page element that was compressed according to at least a second compression format, different from the first compression format.

6. The method according to Claim 2, wherein the autonomic segments are one of the following: area tiles, image tiles or image blocks.

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